



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Teradata Docket No. 8907

Application of:

LEE, Y.

Group Art Unit: 3623

Serial No. 09/782,149

Examiner: Peter Choi

Filed: February 14, 2001

For: COMPUTER IMPLEMENTED CUSTOMER VALUE MODEL IN AIRLINE
INDUSTRY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

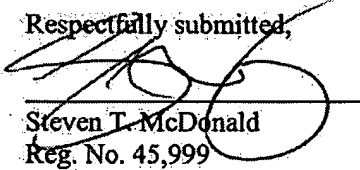
APPEAL BRIEF TRANSMITTAL LETTER

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Respectfully submitted,


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By: 

Name: Michael George



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:
Yung-Seop Lee

Serial No. 09/782,149

Filed: February 14, 2001

For: COMPUTER IMPLEMENTED
CUSTOMER VALUE MODEL IN
AIRLINE INDUSTRY

§ Attorney Docket No. 8907
§
§ Customer No. 26890
§
§ Group Art Unit: 3623
§
§ Examiner: Peter H. Choi
§
§ Confirmation Number: 8329
§

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This Brief is submitted in connection with an appeal for which a Notice of Appeal is filed herewith, from the final rejection of the Examiner dated 23 January 2008 finally rejecting claims 1-7 and 10-16.

The Director is hereby authorized to charge any deficiency fees in association with this communication to Deposit Account No. 50-4370.

CERTIFICATE OF MAILING

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6508 *Michelle George*
Michelle George

REAL PARTY IN INTEREST

The real party in interest is Teradata Corporation, a corporation having a principal place of business at 2835 Miami Village Drive, Miamisburg, OH 45342, the United States of America.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and no related interferences regarding the above-identified patent application.

STATUS OF CLAIMS

Claims 1-7 and 10-16 are pending, stand finally rejected, and are on appeal here. Claims 8-9 have been cancelled. Claims 1-7 and 10-16 are set forth in the Claims Appendix attached hereto.

STATUS OF AMENDMENTS

Amendments were made to claims 1, 10, 11, 12, and 13 after the Final Office Action was filed 23 January 2008, and the amendments to claims 1, 10, 11, 12, and 13 were entered as indicated in the Advisory Action filed 10 April 2008. Further, the objections to claims 1, 10, 12, and 13 set forth in the Final Office Action filed 23 January 2008 have been withdrawn in response to the amendments to the claims after the Final Office Action as indicated in the Advisory Action filed 10 April 2008.

SUMMARY OF CLAIMED SUBJECT MATTER

An embodiment, as set forth in independent claim 1, relates to a computer implemented method of evaluating a plurality of customer records stored in a computer database (Page 7, Lines 9-14) to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute (e.g., Table 1, Net Revenue (CV)) and a second attribute (e.g., Table 1, No. of Flights (FV)), each of the first attribute and the second attribute having an associated attribute value (Table 1, CV and FV fields; Page 3, Lines 4-5; Page 7, Lines 10-15; Page 8, Lines 6-10), the method comprising a) first sorting the plurality of customer records based on the first attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record (Page 8, Lines 20-Page 9, Line 9; Figure 3, step 32), b) second sorting the plurality of customer records based on the second attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record (Page 8, Line 20-Page 9, line 9; Page 9, Lines 16-17; Figure 3, step 32), c) third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute (Page 10, Lines 5-6; Figure 3, step 36), d) fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute (Page 10, Lines 6-8), e) fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute (Page 10, Lines 21-22; Page 10, Line 24-Page 11, Line 3), until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (Page 10, Lines 22-24), f) assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores (Page 11, Lines 25-28), and g) identifying the high value customers by selecting the customer records that have the highest assigned evaluation scores (Page 13, Lines 1-10).

Another embodiment, as set forth in independent claim 10, relates to a computer

implemented method of evaluating customers in the airline industry in a given period to identify high value customers (Page 2, Lines 12-15; Page 5, Lines 6-7), the method comprising: a) obtaining records of each customer's contribution factors with associated values, the contribution factors including at least net revenue and number of flights (Page 3, Lines 3-4), b) storing the records in a database (Page 7, Lines 9-12), c) first sorting the records based on the first attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a first discretized attribute to each record where the first discretized attribute is based on the sorted rank of the record (Page 8, Lines 20-Page 9, Line 9; Figure 3, step 32), d) second sorting the records based on the second attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a second discretized attribute to each record where the second discretized attribute is based on the sorted rank of the record (Page 8, Line 20-Page 9, line 9; Page 9, Lines 16-17; Figure 3, step 32), e) third sorting of the records in to an order based on the assigned first discretized attribute scores associated with the first attribute (Page 10, Lines 5-6; Figure 3, step 36), f) fourth sorting the ordered records resulting from the third sorting in to an order where the records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute (Page 10, Lines 6-8), g) fifth sorting the ordered records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute (Page 10, Lines 21-22; Page 10, Line 24-Page 11, Line 3), until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (Page 10, Lines 22-24), h) assigning an evaluation score to each record based on the rank of each record after the fifth sorting and independent of the discretized attribute scores; which has been sorted (Page 11, Lines 25-28), and i) based on the evaluation score, identifying high value customers. identifying the high value customers by selecting the records that having the highest assigned evaluation scores (Page 13, Lines 1-10).

Another embodiment, as set forth in independent claim 11, relates to a computer architecture for evaluating a plurality of customer records stored in a computer database (Page 7, Lines 9-14) to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute (e.g., Table 1, Net Revenue (CV)) and a second attribute (e.g., Table 1, No. of Flights (FV)), each of the first attribute and the

second attribute having an associated attribute value (Table 1, CV and FV fields; Page 3, Lines 4-5; Page 7, Lines 10-15; Page 8, Lines 6-10), the computer architecture comprising a) means for first sorting the plurality of customer records based on the first attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record (Page 8, Lines 20-Page 9, Line 9; Figure 3, step 32), b) means for second sorting the plurality of customer records based on the second attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record (Page 8, Line 20-Page 9, line 9; Page 9, Lines 16-17; Figure 3, step 32), c) means for third sorting the plurality of customer records in order based on the assigned first discretized attribute scores associated with the first attribute (Page 10, Lines 5-6; Figure 3, step 36), d) means for fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute (Page 10, Lines 6-8), e) means for fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute (Page 10, Lines 21-22; Page 10, Line 24-Page 11, Line 3), until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (Page 10, Lines 22-24), f) means for assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores (Page 11, Lines 25-28), and g) means for identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores (Page 13, Lines 1-10).

Another embodiment, as set forth in independent claim 12, relates to a computer system for evaluating a plurality of customer records stored in a computer database (Page 3, Lines 20-22; Page 7, Lines 9-14) to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute (e.g., Table 1, Net Revenue (CV)) and a second attribute (e.g., Table 1, No. of Flights (FV)), each of the first attribute and the second attribute having an associated attribute value (Table 1, CV and FV fields; Page 3,

Lines 4-5; Page 7, Lines 10-15; Page 8, Lines 6-10), the computer system comprising a processor (Page 3, Lines 22-23), and a memory coupled to the processor (Page 3, Lines 22-23), the memory having stored therein sequences of instructions, which, when executed by the processor, cause the processor to perform the steps of (Page 3, Lines 23-24) first sorting the plurality of customer records based on the first attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record (Page 8, Lines 20-Page 9, Line 9; Figure 3, step 32), second sorting the plurality of customer records based on the second attribute (Page 8, Lines 18-19 Figure 3, step 30) and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record (Page 8, Line 20-Page 9, line 9; Page 9, Lines 16-17; Figure 3, step 32), third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute (Page 10, Lines 5-6; Figure 3, step 36), fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute (Page 10, Lines 6-8), fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute (Page 10, Lines 21-22; Page 10, Line 24-Page 11, Line 3), until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (Page 10, Lines 22-24), assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores (Page 11, Lines 25-28), and identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores (Page 13, Lines 1-10).

Another embodiment, as set forth in independent claim 13, relates to an article, for use in evaluating a plurality of customer records (Page 4, Lines 1-2) stored in a computer database (Page 7, Lines 9-14) to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute (e.g., Table 1, Net Revenue (CV)) and a second attribute (e.g., Table 1, No. of Flights (FV)), each of the first attribute and

the second attribute having an associated attribute value (Table 1, CV and FV fields; Page 3, Lines 4-5; Page 7, Lines 10-15; Page 8, Lines 6-10), the article comprising at least one sequence of machine readable instructions in machine readable form, wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of first sorting the plurality of customer records based on the first attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record (Page 8, Lines 20-Page 9, Line 9; Figure 3, step 32), second sorting the plurality of customer records based on the second attribute (Page 8, Lines 18-19; Figure 3, step 30) and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record (Page 8, Line 20-Page 9, line 9; Page 9, Lines 16-17; Figure 3, step 32), third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute (Page 10, Lines 5-6; Figure 3, step 36), fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute (Page 10, Lines 6-8), fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute (Page 10, Lines 21-22; Page 10, Line 24-Page 11, Line 3), until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (Page 10, Lines 22-24), assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores (Page 11, Lines 25-28), and identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores (Page 13, Lines 1-10).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1-7, 10, and 14-16 stand rejected under 35 U.S.C. § 103(a) over “Quick Profits with RFM Analysis” by Arthur Hughes (“Hughes”) in view of U.S. Patent No. 6,925,441 to Jones et al. (“Jones”).

II. Claims 11-13 rejected under 35 U.S.C. § 103(a) over “Quick Profits with RFM Analysis” by Arthur Hughes (“Hughes”) in view of U.S. Patent No. 6,925,441 to Jones et al. (“Jones”) and further in view of Database Marketing Institute’s RFM for Windows® (“RFM”).

ARGUMENT

ISSUE 1 - Rejections Under 35 U.S.C. § 103(a) Over Hughes in View of Jones

The first issue for the Board's consideration is whether claims 1-7, 10, and 14-16 are unpatentable under 35 U.S.C. § 103(a) over Hughes in view of Jones.

For purposes of this appeal, claims 2-7, 10, and 14-16 stand or fall together with claim 1 in view of Hughes and Jones.

As detailed below, Appellant believes that Hughes and Jones are insufficient to obviate claims 1-7, 10, and 14-16. More specifically, it is Appellant's belief that the Examiner has failed to provide a *prima facie* case of obviousness with regard to claims 1-7, 10, and 14-16.

Claims 1-7, 10, and 14-16

Appellant traverses the rejection of these claims on the grounds that Hughes and Jones are defective in establishing a *prima facie* case of obviousness with respect to claim 1. Claim 1 recites the following:

1. A computer implemented method of evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:
 - a) first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;
 - b) second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;
 - c) third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;
 - d) fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;
 - e) fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

- f) assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and
- g) identifying the high value customers by selecting the customer records that have the highest assigned evaluation scores.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the Examiner has not factually supported a *prima facie* case of obviousness for the following reasons:

Even When Combined, the References Do Not Teach the Claimed Subject Matter

The Hughes and Jones references cannot be applied to reject claim 1 under 35 U.S.C. § 103 which provides that:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since neither Hughes or Jones teaches “fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks” as is claimed in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

First, Appellant notes that the Examiner has alleged that the first attribute on which the claimed first sorting is based is disclosed by the total dollar sales of Hughes, and assignment of a first discretized attribute based on the first sorting is disclosed by assignment of a code (1, 2, 3, 4, or 5) for customer records (See Page 5 of the Final Office Action dated 1/23/2008). Further,

the Examiner has alleged that the second attribute on which the claimed second sorting is based is disclosed by the frequency of Hughes, and assignment of a second discretized attribute based on the second sorting is disclosed by assignment of a code (1, 2, 3, 4, or 5) for customer records (See Pages 5-6 of the Final Office Action dated 1/23/2008). Thus, the Examiner has alleged that the first attribute is disclosed by total dollar sales, the first discretized attribute comprises a code of 1, 2, 3, 4, or 5, the second attribute is disclosed by frequency, and the second discretized attribute is disclosed by a code of 1, 2, 3, 4, or 5.

With regard to the subject claim limitation of “fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks,” the Examiner stated the following:

The records are sorted by the ‘monetary value’ and ‘frequency’ attributes so that within each grouping, all records with a ‘monetary value’ attribute of “5” and a ‘frequency’ attribute of “5” are grouped together, all records with a ‘monetary value’ attribute of “5” and a ‘frequency’ attribute of “4” are grouped together, etc.

Final Office Action dated 23 January 2008, Page 7.

Here, Appellant notes that Hughes only describes sorting the customer records one time based on the monetary value for assignment of a code, and one time based on the frequency for assignment of a code. The subject claim limitation of fifth sorting requires the ordered plurality of customer records resulting from the fourth sorting (the sorting based on the *second discretized attribute scores*) to be again sorted based on the **attribute values** of at least the first attribute and the second attribute - (the attributes alleged by the Examiner as disclosed by total dollar sales and frequency, respectively, by Hughes). Hughes in no manner describes or suggest sorting the customer records that have been previously sorted based on the assigned discretized attribute scores (the claimed third and fourth sorting) based on either the first or second attributes (alleged by the Examiner as the total dollar sales and the frequency). Rather, Hughes only describes sorting the records once based on the total dollar sales and once on the frequency. Thus, Hughes fails to disclose the claimed subject limitation of fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have

been sorted to different ranks. For at least this reason, the Examiner has failed to provide a *prima facie* case of obviousness with regard to claim 1.

Jones does not provide for the deficiencies of Hughes. For at least this reason, the Examiner has failed to provide a *prima facie* case of obviousness with regard to claim 1.

Independent claim 10 recites similar features as claim 1 and was rejected for similar rationale. For at least the reasons discussed above, Hughes and Jones fails to obviate claim 10.

Therefore, Appellant believes the rejections of claims 1 and 10 are not supported by the Hughes and Jones references, and such a notice is respectfully requested.

Claims 2-7, and 14-16 depend from, and further limit, claim 1. Therefore, the same distinctions between Hughes and Jones and the claimed invention in claim 1 apply for claims 2-7 and 14-16. For at least this reason, Hughes and Jones are insufficient to obviate claims 2-7 and 14-16.

ISSUE 2 - Rejections Under 35 U.S.C. § 103(a) Over Hughes in View of Jones and Further in View of RFM

The second issue for the Board's consideration is whether claims 11-13 are unpatentable under 35 U.S.C. § 103(a) over Hughes in view of Jones and further in view of RFM.

For purposes of this appeal, claims 12-13 stand or fall together with claim 11 in view of Hughes, Jones, and RFM.

As detailed below, Appellant believes that Hughes, Jones, and RFM are insufficient to obviate claims 11-13. More specifically, it is Appellant's belief that the Examiner has failed to provide a *prima facie* case of obviousness with regard to claims 11-13.

Claims 11-13

Appellant traverses the rejection of these claims on the grounds that Hughes, Jones, and RFM are defective in establishing a *prima facie* case of obviousness with respect to claim 11. Claim 11 recites the following:

11. A computer architecture for evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first

attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

- a) means for first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;
- b) means for second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;
- c) means for third sorting the plurality of customer records in order based on the assigned first discretized attribute scores associated with the first attribute;
- d) means for fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;
- e) means for fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;
- f) means for assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and
- g) means for identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the Examiner has not factually supported a *prima facie* case of obviousness for the following reasons:

Even When Combined, the References Do Not Teach the Claimed Subject Matter

The Hughes, Jones, and RFM references cannot be applied to reject claim 11 under 35 U.S.C. § 103 which provides that:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since none of Hughes, Jones, or RFM teaches “means for fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks” as is claimed in claim 11, it is impossible to render the subject matter of claim 11 as a whole obvious, and the explicit terms of the statute cannot be met.

With regard to claim 11, the Examiner stated the following:

Claim 11 recites similar limitations already addressed by the rejection of claim 1 above; therefore, the same rejection applies.

Final Office Action dated 23 January 2008, Page 18.

As addressed in the discussion of claim 1, Appellant notes that the Examiner has alleged that the first attribute on which the claimed first sorting is based is disclosed by the total dollar sales of Hughes, and assignment of a first discretized attribute based on the first sorting is disclosed by assignment of a code (1, 2, 3, 4, or 5) for customer records (See Page 5 of the Final Office Action dated 1/23/2008). Further, the Examiner has alleged that the second attribute on which the claimed second sorting is based is disclosed by the frequency of Hughes, and assignment of a second discretized attribute based on the second sorting is disclosed by assignment of a code (1, 2, 3, 4, or 5) for customer records (See Pages 5-6 of the Final Office Action dated 1/23/2008). Thus, the Examiner has alleged that the first attribute is disclosed by total dollar sales, the first discretized attribute comprises a code of 1, 2, 3, 4, or 5, the second attribute is disclosed by frequency, and the second discretized attribute is disclosed by a code of 1, 2, 3, 4, or 5.

With regard to the subject claim limitation of “fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which

have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks,” the Examiner stated the following:

The records are sorted by the ‘monetary value’ and “frequency’ attributes so that within each grouping, all records with a ‘monetary value’ attribute of “5” and a ‘frequency’ attribute of “5” are grouped together, all records with a ‘monetary value’ attribute of “5” and a ‘frequency’ attribute of “4” are grouped together, etc.

Final Office Action dated 23 January 2008, Page 7.

Here, Appellant notes that Hughes only describes sorting the customer records one time based on the monetary value for assignment of a code, and one time based on the frequency for assignment of a code. The subject claim limitation of fifth sorting requires the ordered plurality of customer records resulting from the fourth sorting (the sorting based on the *second discretized attribute scores*) to be again sorted based on the **attribute values** of at least the first attribute and the second attribute - (the attributes alleged by the Examiner as disclosed by total dollar sales and frequency, respectively, by Hughes). Hughes in no manner describes or suggest sorting the customer records that have been previously sorted based on the assigned discretized attribute scores (the claimed third and fourth sorting) based on either the first or second attributes (alleged by the Examiner as the total dollar sales and the frequency). Rather, Hughes only describes sorting the records once based on the total dollar sales and once on the frequency. Thus, Hughes fails to disclose the claimed subject limitation of fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks. For at least this reason, the Examiner has failed to provide a *prima facie* case of obviousness with regard to claim 11.

Jones nor RFM provides for the deficiencies of Hughes. For at least this reason, the Examiner has failed to provide a *prima facie* case of obviousness with regard to claim 11.

Independent claims 12 and 13 recite similar features as claim 11 and were rejected for similar rationale. For at least the reasons discussed above, Hughes, Jones, and RFM fail to obviate claims 12 and 13.

Therefore, Appellant believes the rejections of claims 11-13 are not supported by the Hughes, Jones, and RFM references, and such a notice is respectfully requested.

Conclusion

For all of the foregoing reasons, it is respectfully submitted that claims 1-7 and 10-16 be allowed. A prompt notice to that effect is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Steve McDonald', with a large circular flourish at the end.

Steven T. McDonald
Registration No. 45,999

Dated: 5 June 2008

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Docket No.: 8907

CLAIMS APPENDIX

1. A computer implemented method of evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:

- a) first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;
- b) second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;
- c) third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;
- d) fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;
- e) fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;
- f) assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

- g) identifying the high value customers by selecting the customer records that have the highest assigned evaluation scores.
2. The method of claim 1, wherein step (a) includes the steps of:
- (i) breaking the sorted plurality of customer records into a number of groups based on the rank of each customer record and its first attribute values; and
 - (ii) for each customer record in a group, assigning the same first discretized attribute score.
3. The method of claim 1, wherein step (b) includes the steps of:
- (i) breaking the sorted plurality of customer records into a number of groups based on the rank of each customer record and its second attribute value; and
 - (ii) for each customer record in a group, assigning the same second discretized attribute score.
4. The method of claim 1, wherein step (a) includes the steps of:
- (i) breaking the sorted plurality of customer records into quartiles; and
 - (ii) for customer records of the same quartile, assigning one of the scores of 1, 2, 3, and 4 as the first discretized attribute.
5. The method of claim 1, wherein step (f) includes the steps of:
- (iii) splitting the customer records, which have been sorted, into a number of groups based on their current ranking; and
 - (iv) assigning an evaluation score for the customer records of each group.
6. The method of claim 1, wherein step (f) includes the steps of:

(v) splitting the customer records, which have been sorted, into 100 groups based on the current ranking of the customer records; and

(vi) assigning an evaluation score of between 1 and 100 for customer records of each group.

7. The method of claim 1, wherein step (e) is performed until customer records, which have same assigned first and second discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

8. (Cancelled)

9. (Cancelled)

10. A computer implemented method of evaluating customers in the airline industry in a given period to identify high value customers, the method comprising:

- b) obtaining records of each customer' contribution factors with associated values, the contribution factors including at least net revenue and number of flights;
- b) storing the records in a database;
- c) first sorting the records based on the first attribute and assigning a first discretized attribute to each record where the first discretized attribute is based on the sorted rank of the record;
- d) second sorting the records based on the second attribute and assigning a second discretized attribute to each record where the second discretized attribute is based on the sorted rank of the record;

- e) third sorting of the records in to an order based on the assigned first discretized attribute scores associated with the first attribute;
- f) fourth sorting the ordered records resulting from the third sorting in to an order where the records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;
- g) fifth sorting the ordered records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;
- h) assigning an evaluation score to each record based on the rank of each record after the fifth sorting and independent of the discretized attribute scores; which has been sorted ; and
- i) based on the evaluation score, identifying high value customers. identifying the high value customers by selecting the records that having the highest assigned evaluation scores.

11. A computer architecture for evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

- c) means for first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;
- b) means for second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

- c) means for third sorting the plurality of customer records in order based on the assigned first discretized attribute scores associated with the first attribute;
- d) means for fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;
- e) means for fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;
- f) means for assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and
- g) means for identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

12. A computer system for evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer system comprising:

a processor; and

a memory coupled to the processor, the memory having stored therein sequences of instructions, which, when executed by the processor, cause the processor to perform the steps of:

first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

13. An article, for use in evaluating a plurality of customer records stored in a computer database to identify high value customers to be targeted by a customer retention or reward program, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the article comprising:

at least one sequence of machine readable instructions in machine readable form,
wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of:

first sorting the plurality of customer records based on the first attribute and assigning a first discretized attribute to each customer record where the first discretized attribute is based on the sorted rank of the customer record;

second sorting the plurality of customer records based on the second attribute and assigning a second discretized attribute to each customer record where the second discretized attribute is based on the sorted rank of the customer record;

third sorting the plurality of customer records in to an order based on the assigned first discretized attribute scores associated with the first attribute;

fourth sorting the ordered plurality of customer records resulting from the third sorting in to an order where the customer records having the same first discretized attribute scores are further sorted based on the assigned second discretized attribute scores associated with the second attribute;

fifth sorting the ordered plurality of customer records resulting from the fourth sorting in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks;

assigning an evaluation score to each customer record based on the rank of each customer record after the fifth sorting and independent of the discretized attribute scores; and

identifying the high value customers by selecting the customer records that having the highest assigned evaluation scores.

14. The method of claim 1, wherein step (b) includes the steps of:

- (i) breaking the sorted plurality of customer records into quartiles; and
- (ii) for customer records of the same quartile, assigning one of the scores of 1, 2, 3, and 4 as the second discretized attribute.

15. The method of claim 1, where the first attribute includes the revenue generated by the customer.

16. The method of claim 1, where the second attribute includes the number of purchases made by the customer.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.